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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/938,029	08/23/2001	Shawfu Chen	POU920000197US1	1671

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EXAMINER

MANOSKEY, JOSEPH D

ART UNIT	PAPER NUMBER
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2113

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/938,029

Applicant(s)

CHEN ET AL.

Examiner

Joseph Manoskey

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Related application "Managing Memory Resident Queues to Control Resources of the Systems Using the Queues", on pages 1 and 14, is not identified with a Serial No. or filing date.

Appropriate correction is required.

2. Concerning claims 45 and 58, the examiner suggests to the applicant that the word "machine" on lines 2 and 3 of both claims be changed to "computer".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 9-17, 21-23, 29-37, 41-47, and 53-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Blount et al., U.S. Patent 5,222,217, hereinafter referred to as "Blount".

5. Referring to claims 1, 21, and 45, Blount teaches a method, system and program storage device tangibly embodying a program for switching queue ownership (See Col. 1, lines 7-15). Blount also teaches detecting a failure of a single processor, which is interpreted as obtaining an indication that a queue is to be taken over (See Col. 11, lines 34-35). Blount discloses a data structure being a message queue (See Col. 8, lines 25-26) being located in a lead processor, this is interpreted as the queue being resident in memory of a first processor (See Col. 8, lines 7-8). Finally Blount also discloses another processor being designated as a back-up processor for the data structure, which is interpreted as moving the queue from the first processor to a second processor and the queue being resident in the memory of the second processor (See Col. 8, lines 8-10).

6. Referring to claims 2, 22, and 46, Blount discloses the first processor failing, this is interpreted as the first processor being inactive (See Col. 11, lines 34-35).

7. Referring to claims 3, 23, and 47, Blount teaches an allocation table being able to be rebuilt after the processor crashes and then a back-up site being chosen, the allocation table is interpreted as part of the message queue and thus the queue is rebuilt prior to moving the queue (See Col. 13, lines 36-42).

8. Referring to claims 9, 29, and 53, Blount teaches another processor being designated as a back-up processor for the data structure, which is interpreted as

moving the queue from the first processor to a second processor and the queue being read into the memory of the second processor (See Col. 8, lines 8-10).

9. Referring to claims 10, 30, and 54, Blount discloses keeping a consistent copy of the modified shared data structure, message queue, in the back-up processor and updating automatically upon completion of a transaction (See Col. 8, lines 17-21). This is interpreted as giving a queue a temporary name, determining if a queue already exists in the second processor with the defined name, and moving the queue in response to determining that the queue exists.

10. Referring to claims 11, 31, and 55, Blount discloses the contents of the queue being updated automatically upon completion of transaction (See Col. 17-21), which is interpreted as being moved within one or more commit scope.

11. Referring to claims 12, 13, 32, 33, 56, and 57, Blount teaches updating a copy of the queue on the backup processor, this is interpreted as writing a version of the queue to checkpoint of the second processor (See Col. 8, lines 17-21). Blount also discloses the first processor failing, this is interpreted as the checkpoint of the first processor being deleted (See Col. 11, lines 34-35).

12. Referring to claims 14, 34, and 58, Blount teaches a method, system and program storage device tangibly embodying a program for reconstructing queues (See

Col. 1, lines 7-15). Blount teaches an allocation table being able to be rebuilt after the processor crashes and then a back-up site being chosen, the allocation table is interpreted as part of the message queue and thus the queue (See Col. 13, lines 36-42). Blount teaches another processor being designated as a back-up processor for the data structure, which is interpreted as moving the queue from the first processor to the memory of the second processor, the second processor being different then the first processor (See Col. 8, lines 8-10).

13. Referring to claims, 15, 16, 35, 36, 59, and 60, Blount teaches updating a copy of the queue on the backup processor, this is interpreted as writing a version of the queue to checkpoint of the second processor (See Col. 8, lines 17-21). Blount also discloses the first processor failing, this is interpreted as the checkpoint of the first processor being deleted (See Col. 11, lines 34-35).

14. Referring to claims 17, 37, and 61, Blount discloses writing the rebuilt version of the queue to the checkpoint of the queue. Blount discloses the use updating the queue, this is interpreted as a checkpoint and checkpointing a rebuilt version (See Col. 10, lines 43-45).

15. Referring to claim 41, Blount teaches a system for switching queue ownership (See Col. 1, lines 7-15). Blount discloses a data structure being a message queue (See Col. 8, lines 25-26) being located in a lead processor, this is interpreted as the queue

being resident in memory of a first processor (See Col. 8, lines 7-8). Finally Blount discloses another processor being designated as a back-up processor for the data structure, which is interpreted as a second processor adapted to move the queue from the first processor to the memory of the second processor (See Col. 8, lines 8-10).

16. Referring to claim 42, Blount teaches a system for reconstructing queues (See Col. 1, lines 7-15). Blount teaches an allocation table being able to be rebuilt after the processor crashes and then a back-up site being chosen, the allocation table is interpreted as part of the message queue and thus the queue (See Col. 13, lines 36-42). Blount also discloses another processor being designated as a back-up processor for the data structure, which is interpreted as a second processor adapted to move the queue from the first processor to the memory of the second processor (See Col. 8, lines 8-10). Blount teaches the system having multiple processors and any processor can take over for the first processor (See Fig. 1). This is interpreted as a third processor adapted to read a portion of the updated version of the queue into memory of the third processor and the second and third processors being different.

17. Referring to claim 43 and 44, Blount teaches the system having multiple processors and any processor can take over for the first processor (See Fig. 1). This is interpreted as the third processor being able to be both different and the same as the first processor.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 4-8, 18-20, 24-28, 38-40, 48-52, and 62-64 rejected under 35 U.S.C. 103(a) as being unpatentable over Blount in view of Dievendorff et al., European Patent Application 0280773 A2, hereinafter referred to as "Dievendorff".

20. Referring to claims 4, 24, and 48, Blount teaches all the limitations (See rejection of claims 3, 23, and 47 respectively) except for the use of a recovery log and a checkpoint of the queue to rebuild the queue, however Blount does disclose the use of both updating the queue, this is interpreted as a checkpoint (See Col. 10, lines 43-45), and of logging facilities (See Col. 11, lines 3-7). Dievendorff teaches the use of both recovery logs and checkpoints of for queue reconstruction (See page 3, 19-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rebuilding of the queues of Blount with use of checkpoints and recovery logs for rebuilding of Dievendorff. This would have been obvious to do because the recovery log guarantees recovery (See page 2, lines 24-25) and the checkpoint reduces the amount of the log that needs to be read during queue reconstruction (See page 3, line 24).

21. Referring to claims 5, 25, and 49, Blount discloses all the limitations (See rejection of claims 3, 23, and 47 respectively) except for processing the recovery log to obtain at least one in-doubt event and merging the in-doubt event with a checkpoint to obtain a rebuilt version of the queue, however Blount does disclose the use of both updating the queue, this is interpreted as a checkpoint (See Col. 10, lines 43-45), and of logging facilities (See Col. 11, lines 3-7). Dievendorff also teaches a unit of recovery having an indoubt state (See page 2, lines 33-36), this is interpreted as the recovery log containing at least one in-doubt event. Dievendorff teaches the use of both a recovery log and a checkpoint of for queue reconstruction (See page 3, 19-24), this is interpreted as merging an indoubt event with a checkpoint to obtain a rebuilt version. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rebuilding of the queues of Blount with use of checkpoints and recovery logs for rebuilding of Dievendorff. This would have been obvious to do because the recovery log guarantees recovery (See page 2, lines 24-25) and the checkpoint reduces the amount of the log that needs to be read during queue reconstruction (See page 3, line 24).

22. Referring to claims 6, 26, and 50, Blount and Dievendorff teach all the limitations (See rejection of claims 5, 25, and 49 respectively) including writing the rebuilt version of the queue to the checkpoint of the queue. Blount discloses the use updating the

queue, this is interpreted as a checkpoint and checkpointing a rebuilt version (See Col. 10, lines 43-45).

23. Referring to claims 7, 27, and 51, Blount and Dievendorff disclose all the limitations (See rejection of claims 5, 25, and 49 respectively) including processing a portion of the recovery log in reverse order. Dievendorff teaches the redo records being clustered towards the end of the log (See page 3, lines 20-21), this is interpreted as the entries that are used to rebuild a checkpointed queue and being done in reverse order since they are at the end of the log.

24. Referring to claims 8, 28, and 52, Blount and Dievendorff teach all the limitations (See rejection of claims 5, 25, and 49 respectively) including the in-doubt events representing a most recent event of the queue. Dievendorff discloses the indoubt events exist as events that can continue to successful completion or be undone (See page 2, lines 33-34), which is interpreted as the events being recently created since they can still be undone and thus represent a most recent event of the queue.

25. Referring to claims 18, 38, and 62, Blount discloses all the limitations (See rejection of claims 14, 34, and 58 respectively) except for processing the recovery log to obtain at least one in-doubt event and merging the in-doubt event with a checkpoint to obtain a rebuilt version of the queue, however Blount does disclose the use of both updating the queue, this is interpreted as a checkpoint (See Col. 10, lines 43-45), and of

logging facilities (See Col. 11, lines 3-7). Dievendorff also teaches a unit of recovery having an indoubt state (See page 2, lines 33-36), this is interpreted as the recovery log containing at least one in-doubt event. Dievendorff teaches the use of both a recovery log and a checkpoint of for queue reconstruction (See page 3, 19-24), this is interpreted as merging an indoubt event with a checkpoint to obtain a rebuilt version. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rebuilding of the queues of Blount with use of checkpoints and recovery logs for rebuilding of Dievendorff. This would have been obvious to do because the recovery log guarantees recovery (See page 2, lines 24-25) and the checkpoint reduces the amount of the log that needs to be read during queue reconstruction (See page 3, line 24).

26. Referring to claims 19, 39, and 63, Blount and Dievendorff disclose all the limitations (See rejection of claims 18, 38, and 62 respectively) including processing a portion of the recovery log in reverse order. Dievendorff teaches the redo records being clustered towards the end of the log (See page 3, lines 20-21), this is interpreted as the entries that are used to rebuild a checkpointed queue and being done in reverse order since they are at the end of the log.

27. Referring to claims 20, 40, and 64, Blount teaches all the limitations (See rejection of claims 14, 34, and 58 respectively) except for the use of a recovery log and a checkpoint of the queue to rebuild the queue, however Blount does disclose the use

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of both updating the queue, this is interpreted as a checkpoint (See Col. 10, lines 43-45), and of logging facilities (See Col. 11, lines 3-7). Dievendorff teaches the use of both recovery logs and checkpoints of for queue reconstruction (See page 3, 19-24). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rebuilding of the queues of Blount with use of checkpoints and recovery logs for rebuilding of Dievendorff. This would have been obvious to do because the recovery log guarantees recovery (See page 2, lines 24-25) and the checkpoint reduces the amount of the log that needs to be read during queue reconstruction (See page 3, line 24).

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are examples of closely related message queue systems.

U.S. Patent 5,621,884 to Beshears et al.

U.S. Patent 6,353,834 to Wong et al.


U.S. Patent 6,253,212 to Loaiza et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Manoskey whose telephone number is (703) 308-5466. The examiner can normally be reached on Mon.-Fri. (8am to 4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JDM
May 6, 2004


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